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Formal Gardening: Where it can be Used to Advantage.

WE said last week that there is no real opposition between the formal and the naturalistic styles of gardening, widely apart though their extreme results may lie; but that they are twin branches of that great art which means the expression of man's sense for beauty on the surface of the ground by the use of Nature's materials. Formal gardening does not, as we are apt to think, cramp the artist within very narrow limits. The hill-side garden of Italy, with its terraces and balustrades, stairways, grottoes and statues, and its rich masses of free-growing foliage contrasting harmoniously with these artificial features, is formal in aim and aspect—that is, it does not aim to suggest effects which Nature spontaneously produces, or to clarify and deepen impressions which wild scenes can make. Formal is the vast level park at Versailles, with its magnificent straight alleys of trees, its big rectangular basins of water, its stately fountains and cascades and wide graveled spaces—splendid outdoor drawing-room that it was for a pompous king and his courtiers. But formal, too, is the park at Dijon, which also Le Nôtre designed, where a straight avenue runs through the centre, and narrower ones radiate from it to the drive which encircles the park, but where the whole of the remaining space is a free-growing forest, traversed by winding foot-ways of turf. The old Dutch garden was formal, with its trees and shrubs clipped into fantastic shapes, and its puerile, toy-like ornamentation; but so, too, was the great walled garden of old English days, symmetrically arranged and partly planted in stiff fashions, but partly given up to more naturalistic "heaths"—the garden that Bacon described and that Evelyn loved. An enclosed court-yard laid out with gravel and pattern-beds of flowers, such as the one at Charlecote Hall, in England, which was illustrated some years ago in these pages, is formal, of course; but so, likewise, are those small Parisian pleasure-grounds which are formed by simple lawns, encircled by borders of varied and naturally growing flowers, and so, too, was your grandmother's garden in New England, with its masses of luxuriant plants, but its straight walks bordered by prim little edgings of Box. Some of these types are more formal—more architectural than others; but in none of them has Nature been "delicately humored," as she is in the naturalistic park or garden; in all of them a non-naturalistic ideal has been expressed by non-naturalistic methods of arrangement.

We can thus draw a line between one great gardening style and the other. But it should be felt that this line is not a rigid one. The borders of the two styles overlap, not as regards fundamental conceptions, but as regards details of execution. Nature must be allowed her freedom to some extent, even where all the trees are clipped and all the grass is shorn and all the flowers are set in pattern-beds. Within the prescribed shapes and lines she must grow her flowers and foliage as she will, and she must supply light and shadow and the atmospheric envelope. And, on the other hand, artificial, formal elements must enter into every landscape which man's foot is to tread and man's eye is to enjoy as a work of art. We must always have roads and paths and the non-natural curbs or edges of grass that they imply. In private grounds we have a house as the very centre and focus of the scene, as the very reason for its artistic treatment; and in public parks we have minor buildings, bridges, steps and a dozen other artificial preparations for human comfort. No garden can be altogether artificial, and none can be altogether natural; and this is enough to prove that the elements characteristic of the one style may sometimes be very freely introduced into a general scheme which we class as belonging to the other style.

The Thier-garten in Berlin is probably the finest public pleasure-ground in all Europe. Some of its portions are wilder-looking, more distinctly naturalistic, than any parts of Central Park. But through its whole breadth runs a wide formal space, with straight drives and walks, richly adorned with works of sculpture and planted in appropriate ways. In the park at Dresden, on the other hand—once a royal, but now a public possession—the general scheme is formal, with a beautiful seventeenth-century palace as its central feature; on one side of this a rectangular sheet of water, and on the other a flower-beset lawn of similar size and shape, and with straight avenues crossing the whole tract in various directions. Once this park was much smaller than it now is, and was formal throughout; but later additions and alterations have given its outlying portions a thoroughly naturalistic look, here being little forests tangled with freely growing shrubbery, and there broad glades where huge Oaks and Elms stand in semi-rural isolation. Yet, as the transitions have been artistically managed, there is no want of harmony in the scenes through which one passes; the free park-like charm of some of them merely seems refreshing in contrast to the architectonic dignity of those we have just left; or, if we come first upon the naturalistic parts, they merely make more impressive and appropriate the formality of those which encircle or lead up to the palace.

In our own Central Park we have a distinctly naturalistic scheme, with no such dominating formal feature as the many-pathed long avenue in Berlin. But here, too, we, nevertheless, find a formal feature of great importance, in the wide straight walk which is called the Mall, symmetrically planted with rows of Elm-trees, and ending upon an architectural terrace with flights of stairs descending to the plaza at the edge of the lake. Nothing in the park is more beautiful than the harmonious contrast we note when, standing on this terrace, we look in one direction down the formal Mall and in the other across the water to the naturalistic opposite shore of the lake. Each of these prospects gains in charm by its artistic opposition to the other—an opposition which is turned into union by the presence of the intervening sheet of water. And even when we are far away from the terrace, the Mall plays a

necessary part in the scene. It was needed in such a park to accommodate great concourses of pedestrians; and what is needed in a park must, if skillfully treated, increase its beauty by increasing the force and truth of its expressiveness. The Mall gives just the one strong touch of confessed art which was required, in the centre of this wide, naturalistic pleasure-ground, to prove that it is a public pleasure-ground and not a stretch of pastoral country with an excessive number of roads and paths, and not a private domain. It was needed to show the exact artistic character of the general scheme, and to prepare the mind for such other formalities and artificialities as are required in a much-frequented public park. It says, in unmistakable accents, that the whole scheme is not natural; that the purpose of the neighboring landscape-pictures is not to make people believe they are in the country, but merely to suggest the country; not to assume rusticity to but to typify it; not to affect naturalness, but to be poetically naturalistic.

In truth, while naturalistic methods of treatment are most appropriate in the large urban pleasure-grounds of to-day, there must be a difference between their treatment and that of those beautiful natural sites, more remote from the centres of population, which are now being reserved in many places for public pleasure-grounds of another sort. No really urban pleasure-ground, like the Thiergarten or the Central Park, or Franklin Park at Boston, could be a satisfactory work of art without some conspicuous formal features. For in all gardening schemes, as well as in all architectural schemes, utility must be joined with beauty in the artist's ideal; and the franker the expression of a feature's utility, the better, as a rule, the artistic result. With regard to such parks, at least, there can be no doubt that the words which we quoted last week from André are true: "To the composite style, which results from a mingling of the other two, under favorable conditions, belongs the future of gardening art." And what is evidently true in certain cases can hardly be assumed as always false with regard to allied cases. What must be done in an urban park may be done in a vast variety of other works. Surely there is no essential opposition between the formal and the landscape styles of gardening, although, of course, it takes an artist's hand to marry them with any promise of a peaceful union.

Cypress, as a building material, is discussed in a recent issue of the *St. Louis Lumberman*. This wood, the product of Taxodium distichum, is, according to our contemporary, one of the most satisfactory that can be used in every part of a building. The price at which it is sold makes it too expensive for framing, but for siding nothing is better, its enduring quality making it for this purpose cheaper than wood of less first cost. A roof made of cypress is said to last a hundred years and to require little repairing. It can be used for all sorts of inside finish, as it combines the qualities of the best hard wood and is as cheap and as easily worked as pine. It is not surpassed by any other American wood for sashes, doors, window and door frames, partitions, ceilings or mouldings. The variety of its grain and color makes it suitable for furniture, and gives to this wood a special value in the construction and finish of moderate-cost houses where it is desirable that the use of paint should be avoided.

Cypress, although it has a tendency to "shrink endwise," as carpenters say, is one of the most valuable of the North American soft woods and is not now as well known at the north as it should be. In some parts of the south, especially in Louisiana, it has for a century been the principal wood used in the construction of buildings; indeed, the wooden houses of New Orleans are about all built of cypress, which is also almost exclusively used for the large cisterns with which nearly every New Orleans house is supplied for catching rain-water.

The supply of Cypress-timber is still large in some parts of the south, the inaccessibility of the swamps in which it grows, and the difficulty of cutting the timber and floating it to market, except when they are inundated by spring freshets, having thus far protected it. With the disappearance and increasing cost of white pine, cypress, which is the best substitute for it the eastern states afford, will be more used and more fully appreciated at the north.

Notes on North American Trees.—XXX.

Anamomis.—In the *Flora of the British West Indies*, Grisebach established the genus Anamomis to receive a small group of trees of the Myrtle family previously referred to Eugenia. It differs from that genus in the inflorescence, which is an axillary, dichotomously branched cyme, and by the radicle of the embryo, which is much longer than in Eugenia, which is best distinguished by its very short contracted radicle. From Myrtus it differs in its membranaceous seed-coat, large cotyledons, and shorter radicle, and in the inflorescence, although Bentham, misled, perhaps, by Grisebach's description of the embryo of Anamomis, in which the radicle is said to be "basilar, incurved, approaching the top of the cotyledons," referred Anamomis in the *Genera Plantarum* to the South American Luma of Gray, a genus distinguished by its very long curved radicle, although in other respects much like Anamomis, of which he made a section of Myrtus.

In the silva of North America Anamomis is represented by the West Indian tree which has usually been called Eugenia dichotoma, and which inhabits the southern extremity of the Florida peninsula. In this plant the seed is reniform, with a thin membranaceous coat, large fleshy cotyledons, and a slender basilar, terete, accumbent radicle a third as long as the cotyledons; these are distinct, large, thick and fleshy, obovate, flat and rounded at the apex, or often contracted at the apex into broad points incurved and variously folded one over the other. The cymose inflorescence is composed in its simplest form of an axillary peduncle with a single sessile flower; usually a secondary peduncle (generally described as a pedicel) is developed from the axil of each of two linear-acute bracts placed on the primary peduncle immediately below the flower; these secondary peduncles are also one-flowered, so that the inflorescence in its usual form is three-flowered, the middle flower appearing sessile in the forks of the long stalks of the two lateral flowers. The secondary peduncles are also bi-bracteolate at the apex, and from their bracts a second series of peduncles are sometimes produced, in which case the cyme is seven-flowered.

If the arrangement of Bentham and Hooker is followed, this tree must be referred to Myrtus, but in Myrtus the inflorescence is mostly one-flowered, and the seed, which is enclosed in a thick hard coat, contains an embryo with small cotyledons much shorter than the slender curved radicle, and as in Myrtaceæ the length and character of the radicle is an important character in limiting genera, it will be convenient perhaps for this, as well as for geographical reasons, to retain Grisebach's genus.

Unfortunately, in removing this plant from Eugenia to Anamomis, Grisebach did not retain the specific name, but coined an entirely new one, which, according to modern rules, cannot be maintained; and for his Anamomis punctata Anamomis dichotoma should be adopted if the genus is retained. The synonymy of our Florida tree, as it will appear in *The Silva of North America*, is:

Anamomis dichotoma.

Myrtus fragrans, Sims, *Bot. Mag.*, t. 1241 (not Willdenow, teste Grisebach).

Myrtus dichotoma, Poiret, *Lam. Dict. Suppl.* iv., 53.

Myrcia Balbisiana, De Candolle. *Prodr.* iii., 243 (teste Grisebach).

Eugenia dichotoma, De Candolle, *Prodr.* iii., 278.

Anamomis punctata, Grisebach, *Fl. Brit. W. Ind.*, 240.

C. S. S.

Are the Varieties of Orchard-fruits Running Out? II.

THE following is the conclusion of Professor Bailey's address—a portion of which appeared in our issue of February 22d:

3. Are more meritorious varieties supplanting the old?

Yes; not only because they are better adapted to varying environments, but because varieties of greater intrinsic merit are appearing. This improvement is, in fact, the chief incentive to the origination of new varieties. The changes in our fruit-lists mean nothing if they do not indicate that we are progressing. Poor or indifferent varieties are introduced, but they soon find their level, disappear, and are said to have run out. If every new country develops varieties specially adapted to itself, then it must follow that changes in the original fruit-lists come most rapidly in such countries, and that they will afford the greatest list of discarded varieties in any given length of time. Thus American fruit-catalogues appear to contain few very old varieties as compared with European countries, even when allowing for the great difference in the age of the two countries. That is, varieties disappear more rapidly here; but a certain stability will come with age, as in other countries, and we shall then probably hear less about the running out of the tree-fruits.

In 1892, 763 varieties of Apples were offered for sale in North America. This great list must contain enough meritorious varieties to supplant all the old ones which have weak points. This leads me to say that nearly all the old varieties which possess superlative merits still exist; and this is proof that varieties do not wear out, but drop out. Any nurserymen knows that the Isabella Grape has not run out, but that it is crowded out by the Catawba and Concord. The Barnard Peach, still grown here and there, is driven out in nearly all Peach regions by brighter and larger varieties. It would be but a few years before such Peaches as Amsden, Alexander and Hale would disappear if a good variety of their season were introduced. You may be inclined to doubt this last statement—that nearly all the superlative old varieties still exist—and cite me to the fact that the Esopus Spitzenburg Apple, White Doyenne Pear and some others are little grown now. This leads me to ask:

4. Are not certain varieties peculiarly liable to disease or insect injury?

It is well known that some varieties are much more subject to fungous and insect attacks than others, and when they are seriously injured year by year the cultivation of these varieties becomes restricted or may stop entirely. The Kittatinny Blackberry, attacked by the red rust; the Iona Grape, attacked by phylloxera, and the Fameuse Apple, very subject to scab, are grown only in particular localities, and were it not for the fact that they possess superlative merits, they undoubtedly would have entirely disappeared before this. The White Doyenne Pear has been almost entirely driven out because of fruit-cracking, and Flemish Beauty, but for the sprays, would soon follow. I am convinced that the chief causes of the failure of the Esopus Spitzenburg are the apple-scab and insufficient fertility of soil, and the experiments in spraying indicate that this good old Apple can yet be grown with satisfaction and profit. The decreasing popularity of the Spitzenburg is regarded as the chief contemporaneous example of the supposed running out of varieties; but it is chiefly driven out by disease.

5. Do fashions and demands change and call for new types?

Yes; and the chief reason why many of the good old dessert fruits are now unknown is because our modern demands are for fruits of great productiveness, large size, beauty, good carrying qualities, and ease of propagation and growth in the nursery; varieties which least satisfy these demands tend to disappear. There is no money in the Dyer, Jefferis and Mother Apples so long as we have the Baldwin and Ben Davis. The persistence of varieties is determined very largely by the money there is in them, and when fashions and demands change, the varieties change.

I may say here that the merits of many of the old varieties are exaggerated through rosy or unreliable memories. Scarcely a season passes that some one does not regret to me that the old Summer Bell and Jargonelle Pears have passed from cultivation; yet, as compared with even our commonest varieties, these Pears are inferior. Memory is at fault.

It is by no means true, I imagine, that only the best varieties are in cultivation. Probably there are as good, if not better, varieties for particular purposes in the old or obscure fruit-lists as those we now commonly cultivate. They may have been overlooked or neglected, or their merits may not have been properly placed before the public. We have more riches than we know. It is true, also, that it is very difficult to supplant a variety which has once obtained a firm foot-hold. Even a better Apple than the Baldwin, for all purposes to which the Baldwin is adapted, would find great difficulty in dislodging it. The lists of tree-fruits change more slowly than those of bush-fruits and vegetables, because the age of the plant is greater; and for this reason there are fewer epitaphs of dead varieties in the old orchard books than in the literature of the smaller fruits. It should be said, too, that there are fewer places to be filled now than there were a century or even a generation ago, when a few varieties had to do duty for all demands. So new varieties come in slowly in orchard-fruits; and for this reason they are apt to stay when they do come, and the old varieties may be completely driven out.

The conclusion of the whole matter, as I now see it, is this: Varieties of orchard-fruits, which are propagated by buds, do not run out or wear out, but they may disappear because they are ill-adapted to various conditions, because they are susceptible to disease, and because they are supplanted by better varieties or those which more completely fill the present demands or fashions. The disappearances are, therefore, so many mile-stones to mark our progress!

Palms at Federal Point, Florida.

ONE of the most beautiful and interesting gardens in the south, certainly the most beautiful in Florida, is that of Mr. E. H. Hart, at Federal Point, Florida. This has been for several years famous for its magnificent Palms, but it is equally rich in ornamental evergreen shrubs, such as Michelia fuscata, Tibouchina (Pleroma) Benthamiana, Brumfelsia and many others.

The garden and Orange-grove are located in the flatwoods, with a clay subsoil, and they are artificially drained. A large number of plants thrive luxuriantly in this soil. An Acacia dealbata had attained a height of twenty-five feet in a few years. It was not damaged materially by the great freeze of January, 1886, but died in 1887, apparently without a cause. A large and dense specimen of Podocarpus Nageia is a revelation of beauty to the lover of plants. Araucarias are usually not successful in Florida, but a specimen of A. Bidwilli, one of the most striking species, has already attained here a height of thirteen feet. Bamboos also do well, and a Bambusa argentea stricta is thirty feet high.

But the most important feature of Mr. Hart's garden is the collection of Palms. All the species tried by Mr. Hart grow well, with the exception of Washingtonia filifera and the Braheas, which do not appear to find favorable conditions of soil and climate, although they are hardy enough. Frost is the only drawback in growing nearly all the Palms, and only the hardiest will survive an exceptionally cold winter. Corypha australis is generally hardy, but all the large specimens on this place succumbed to the four-days continuous freezing in January, 1886. Mr. Hart says that Palms can hardly be fertilized too much, and the more fertilizer and water they get the faster they grow. They will thrive under the application of nitrogenous manures in quantities sufficient to kill most other plants. It is well known that on the Riviera and in Italy a cart-load or more of stable manure is applied to each large specimen Palm, and that the plants like such treatment is proved by the large and healthy specimens seen there.

Most of Mr. Hart's Palms are planted about in the Orange-grove and on the borders and headlands, and they receive the same treatment as the Orange-trees. In order to show what immense growth they make in a very short time on this famous place, I shall only mention that a Cocos plumosa, set out as a pot-plant not six years ago, now stands twenty-five feet high, with a cylindrical, ringed trunk ten inches through. Among measurements made of some of the specimens in this large collection were several Latanias (Livistona) fourteen feet high; one of these was in bloom when I saw it on the 20th of January. Several Washingtonia robusta are sixteen to twenty-six feet high, and plants of W. filifera measure from twelve and a half to sixteen feet. Acrocomia sclerocarpa measures thirteen feet; Cocos plumosa, from twenty to twenty-five feet; Phœnix primula, fourteen and a half feet; P. dactylifera as high as twenty-seven feet; P. Canariensis, from seventeen to nineteen feet; P. vinifera, eleven feet; P. sylvestris, thirty feet; P. reclinata, twelve and a half feet; P. rupicola, eight feet; a specimen of P. Canariensis, twenty-two feet, with a spread of twenty-eight feet, the trunk four feet or more in diameter; P. Leonensis, eleven feet; P. tenuis, twelve feet; Cocos flexuosa, blooming, thirty feet; C. Datil, six feet; C. australis, in all sizes up to eight feet; Livistona Hoogendorpii, nine feet; L. olivæformis, eleven feet; Sabal (species un-

known), eighteen and a half feet; S. Mocini, with immense leaves, ten feet; S. longipedunculata, ten feet; S. umbraculifera, seventeen feet; S. Havanensis, twelve feet; S. princeps, twenty feet; Chamærops humilis Sinensis, eleven feet; C. elegans, ten feet, and Diplothemium campestre, subdivided into seven trunks, eleven feet.

These constitute a small part of the great collection, but they are the largest specimens in the garden. The immense number of younger plants deserves a separate article, but these notes can give only an inadequate idea of the great luxuriance and beauty of Mr. Hart's garden, which is most attractive in the winter season.

Milwaukee, Wis. *H. Nehrling.*

Fig. 21.—A Farm-house in Northern California.

A Study of Architecture in the Rural Districts of the West.

THE study of architecture in the rural districts of the west is an interesting one. Of all the environments of the western home-builder that of climate is most potent in the planning and construction of the dwelling-house. This applies especially to emigrants to the prairies of the Dakotas, Iowa, Nebraska and Minnesota.

The domicile of the pioneer farmer of Iowa was a small house built of logs, between which was thrust a plaster made of mud, a building which afforded a sufficient protection from the bleak winters of that section. Farther west, in Nebraska, where the winters were much more severe, the settler's house was built of logs, with earth heaped around it nearly to the roof. This made a characteristic and comfortable shelter. In the Dakotas, where the mercury is in the habit of dropping to zero in the fall, and to forty degrees below zero during the winter, the pioneer farmer is almost compelled to burrow to protect himself against the cold. Here the sod-house, or "shack," is common, standing clean-cut and black against a far-reaching background of glistening snow. This house is made of bits of sod cut about twelve inches square, and laid one upon the other, until four walls of solid earth a foot thick are built around the hearthstone. The roof is of sticks and brush covered with sod. When the house is completed it is as impervious to cold as the best lath-and-plaster house in the country. There is an extreme plainness and barrenness, however, that renders a house of this sort very unattractive. Blossoming vines and quickly growing and richly foliaged trees and shrubs are impossible, owing to the unfriendly climate. It must stand and appear at its face value until fortune enables its owner to build over it a more costly and elaborate house.

Throughout the northern half of California the observer cannot but be impressed with the cosy and inexpensive houses which he sees on every side, and in the same region he also finds many dwellings apparently in the last stages of decay. The degree of vigor, energy and enterprise of the new-comer to an agricultural district is clearly shown in his barns and dwelling, and in the Pacific coast states this object-lesson is too frequently an unfavorable one. The thrifty immigrant from the states east of the Mississippi River surrounds himself with well-kept buildings, upright fences and thoroughly cultivated lands. The native-born farmer is listless, easy-going, devoid of enterprise. His farm, his barns, his fences, his house and his family present the same shiftless, despondent appearance. There are, of course, exceptions to this rule, but they are very few.

The farmer in the Pacific coast states, and especially in California and Oregon, is greatly favored by climate in the building of his house. It may be constructed of matched boards and batten. If he cannot afford to paint it, two coats of whitewash will give a clean and fresh appearance. About the door

many sorts of shrubs and flowering plants may be set. Over the porch and roof Rose-vines will bloom the year through. Inside the house there need be no expense for lath and plaster. Muslin, made especially for this purpose, and costing but three cents a yard, may be tacked to the walls, making a good surface for wall-paper.

The illustration on the opposite page shows a cosy and comfortable dwelling, and the Prune and Cherry-orchards of a farmer in the northern part of California. The house cost less than $150 as it stands. A part is built of matched boards and a portion of it is constructed of what is called "rustic"—redwood boards, a foot wide, beveled at one edge so that they lap each other like clapboards. The house, the barns and the windmill were whitewashed at a cost of less than two dollars for lime. Dwellings of this character are a striking contrast to the uncouth houses of logs and turf which were the habitations of early settlers on the farm-lands of the middle-west.

Hamburgh, Conn. *Thomas Holmes.*

Foreign Correspondence.

London Letter.

ACIDANTHERA ŒQUINOCTIALIS.—This is a new introduction of considerable interest, botanically, and a likely plant for the garden. It is described by Baker in his *Handbook of Irideæ*, as having a lax spike of white flowers, with a slender tube five and a half inches long and lanceolate segments one and a half inches long, spotted with red at the throat. It was known to Herbert, whose drawing of the flowers is in *Lindley's Herbarium*. The corm and leaves were unknown. The species is a native of Sierra Leone, and Mr. Scott Elliot, when on a botanical visit to that country a year ago, saw it on the Sugar-loaf Mountain, where specimens, including good corms, have since been collected and forwarded to Kew by Captain Donovan. The corms are two inches in diameter, with brown gladiolus-like tunics; the leaves are stout, as in G. brenchleyensis, and the stem, including the spike, is thick, erect and over a yard high. We look forward to the flowering of this plant with great expectations. The only other species of Acidanthera known to me is A. bicolor, an Abyssinian plant, of which a figure and interesting particulars were published in GARDEN AND FOREST, vol. i., pp. 486 and 487. The distribution of this genus in Africa is remarkable, thirteen species being natives of Cape Colony, two of Abyssinia, one of Sierra Leone and two of Zanzibar and Kilimanjaro. A. œquinoctialis comes from a high elevation and will probably prove as hardy as A. bicolor. Last year plants in flower of this species were exhibited from Kew, and they excited bulb-growers generally, who were quite unacquainted with the plant. Many applications for it have since been made to Kew, whose stock, by the way, originally came from Professor Sargent. Until the picture and account of this plant appeared in GARDEN AND FOREST, its beauty was not known here.

CHIONOSCILLA ALLENI is the accepted name for a natural hybrid between Chionodoxa Luciliæ and Scilla bifolia, which was first noticed several years ago by Mr. J. Allen, of Shepton Mallet, growing in his garden among Scilla bifolia. Seeing that both parents occur wild together and that they are evidently closely related, the origin of the hybrid is not surprising. Mr. Allen has just sent flowers of it to Kew. They are very similar to the Scilla in general effect and color, but they certainly combine the characters of both genera. Mr. Allen wrote of this plant in 1891, in *The Garden*, as follows: "For the last four or five years I have had natural hybrids between Chionodoxa and Scilla bifolia come up in my garden. Some of the earlier plants have now become strong and give good trusses of flowers, but I am sorry to say they show little inclination to multiply, and so far I have only the original bulbs. The flowers are mostly self-colored, although a few are lighter toward the centre. While showing their origin most plainly they are very distinct from both parents, and the flowers are bright and attractive and they look you straight in the face. Most of them have pale yellow anthers, adding much to their beauty. The first year the flowers are small, usually about the size of the Scilla, and it is not till the third or fourth year that they show their true character. I have flowered a few seedlings of the second generation, and I think they will show improvement on the first break. One of these has given a flower with a white centre." The most conspicuous difference between the Scilla and the Chionodoxa is that the flowers of the former have the segments divided to the base, radiating star-like, and purplish anthers standing clear of each other, whereas in the Chionodoxa the segments are united at the base, forming a distinct tube half an inch long, and the yellow anthers are close together, hiding the stigma. The hybrid has a short tube, and the anthers in their pose are intermediate between the two parents. I think we may look upon Mr. Allen's interesting find as proof of the generic oneness of Scilla bifolia and Chionodoxa, whatever other Scillas may be. The fact of the hybrid reproducing itself from seeds is in itself most interesting, even if we admit the close relationship of the parents. I am not aware of another case of a hybrid reproducing itself true from seeds.

SCILLA BIFOLIA is one of the most charming of hardy early spring-flowering plants. We grow it largely at Kew, patches of it in the wild-garden, in beds as a carpet to Roses, etc., and in tufts in the rock-garden being beautiful in February and March. It is also pretty in combination with tufts of the Snowflake (Leucojum vernum), a delightful picture at the present time in the rock-garden. Winter Aconite and Snowdrop are the first heralds of spring among the small plants. After them come in quick succession the elegant Snowflakes, Chionodoxa, Scilla and the Hepatica Anemones. A. angulosa is a beautiful plant all through March, its handsome lobed reniform leaves and bright blue starry flowers two inches across forming a true alpine picture against a gray boulder in the rock-garden. The same plant occurs again in quantity as a carpet to a bed of Brier Roses, and it is included among the choice spring flowers for cultivation in pots to decorate the greenhouse. The varieties of A. Hepatica, of which there are now some superb colors, are grown in a bay in the rock-garden, and are a source of great delight to the many visitors who know only the old Hepatica.

ERANTHIS CILICICA.—Growers of that most delightful of early spring-flowering plants, the winter Aconite (E. hyemalis), will welcome this second species, which appeared for the first time in cultivation a year ago at Kew, and has lately been distributed among English horticulturists by Mr. Whittall, of Smyrna. According to Mr. Baker, who notices it this week in the *Gardeners' Chronicle*, where the flower is figured, it differs from E. hyemalis in having shorter anthers and six sepals nearly half an inch broad; it also has a smaller and more deeply incised involucre with narrower lobes. It does not flower till the middle of February, whereas E. hyemalis is often in full bloom a month earlier. The new species may also be recognized when growing by its red-brown stems. We grow the winter Aconite very largely at Kew both on the lawns and scattered among the plants on the rockery, as well as in beds among Roses, etc.

RHODODENDRON DAURICUM.—This is the most attractive shrub in flower out-of-doors at the present time, bushes of it five feet high and a yard through being smothered with clusters of rosy mauve flowers. It is very hardy, and it flowers even in bad weather in February and March. Even superior to it is the hybrid raised between it and R. ciliatum by Davis, of Ormskirk, and named by them R. præcox. I question if there is a more charming spring-flowering shrub known than this, but it is not at all abundant in cultivation, notwithstanding the fact of its having been raised and sent out over thirty years ago. It is certainly a plant of exceptional merit. There are several varieties of it, one of which, called Rubrum, we use for forcing for the conservatory. There is no more useful hardy Rhododendron.

DAPHNE MEZEREUM.—A letter devoted to spring-flowering plants must contain a word about this, albeit I have more than once noted its beauty in the garden at this time of

year. There are two large beds of it, each over twelve feet across, on the end of a long grass vista in the arboretum at Kew, which, when the sun is shining upon them, are visible nearly half a mile off. The plants are bushes two feet high, composed of numerous erect wand-like branches clothed from base to tip with bright rosy purple flowers. These two beds have been a great attraction for about three weeks, and they will last a week or two longer. Certainly the Mezereum is a plant for every garden.

London. *W. Watson.*

Cultural Department.

A Serious Filbert Disease.

EARLY in the season a large grower of exotic trees found that his test orchard of several hundred Filbert-trees was being destroyed by some obscure enemy. Many of the branches were more or less blighted, often for several inches along one side, and rough oval warts had developed, varying from a quarter to a third of an inch in length. These warts had evidently contained the spore-cases of the fungus enemy, but being of previous years' production they had become mature and the spores were gone. From the general appearance of the diseased parts it seemed quite likely that the trouble was due to a fungus somewhat related to the black knot, well known as an enemy of Plum and Cherry-trees. Early in the summer it was evident that the disease was very deeply seated

Fig. 22.—Filbert Twig attacked by Blight.

and was present in nearly all the trees. Sometimes one side of a trunk was affected, in other instances the trouble seemed confined to a single large branch, while frequently the twigs of last year's growth were dead or dying. Figure 22 is an engraving of the Filbert blight as seen upon the twig, shown natural size. With considerable variation at different sizes and stages the same general appearance obtained, namely, a shrinking of the tissue and the presence of the rough oval warts, which are somewhat inclined to an arrangement in one or more rows on the affected parts. An inspection of the native species of Hazel (Corylus Americana) showed that only at rare intervals was any of the Filbert fungus to be found.

Examination of the warts led to the conclusion that the fungus is perennial, and the spore sacs within and developed with the warts require a long time for their formation. In midsummer only immature living warts could be found, and by examining these freshly cut from the trees at intervals of a month or so through the season it was demonstrated that spores in sacs were produced in the warts at the end of the season. Figure 23 helps to show the nature of this blight, with longitudinal and transverse sections of an affected stem. The depth to which the fungus penetrated is shown in the transverse sections. The fungus checks the formation of wood and the stem becomes eccentric with the warts upon the non-growing portion.

It seems probable that the spores falling upon the young developing twigs in early spring germinate and penetrate the soft epidermis. After vegetating for a time the warts are developed possibly at the natural minute rifts in the bark known as the lenticels. Likewise, it is probable that these lenticels furnish the proper places for the entrance of germs to twigs that are more than a year old. The fungus when once within the twig feeds upon the assimulated sap of the host, and spreads up and down the twig, in these respects resembling the fungus, Plowrightia morbosa, causing the black knot. The similar structure, methods of growth and propagation of these two fungi suggest that the same treatment should be followed for both. The importance of eradicating the blackk not by means of the knife and burn heap was made emphatic years ago.

As the European Filberts are not generally grown in this country, this subject of twig-blight is not of general interest. It, however, might become so should the Filbert industry develop in this country, or if the disease above described should spread to some of the Filbert's many closely related native trees. We cannot afford to overlook the importance of making a study of fatal diseases simply because they are local. It is then that they can be stamped out, if ever. Those who import new kinds of plants and cultivate them for the first time in this country should watch carefully for symptoms of disease of any sort, as it is possible to introduce an enemy that may neutralize all the good of the importation. It is a pleasure to record the fact that the owner of the test orchard of European Filberts is willing to root out all of his trees if they cannot be cured, and will sell no young stock although it looks perfectly healthy.

Rutgers College. *Byron D. Halsted.*

Hardy Deciduous Barberries.

THE common Barberry of our gardens, often so plentiful along the way-sides and in the fields of the older-settled parts of the eastern states, is not a native plant of this country, but belongs to the flora of Europe and Asia, and has been introduced here since the first settlement of the country. The freedom with which it appears to have adapted itself to the conditions of climate and soil and the seemingly natural and spontaneous manner of its growth along with the indigenous vegetation, might well lead any one not acquainted with its history to believe that it was one of the aboriginal tenants of the soil.

There is really no native species of Barberry to be found in the New England or northern states or in that part of the Dominion of Canada lying north of them. One native species only is found in North America east of the Mississippi River. Although this was named Berberis Canadensis by the early American botanist, Pursh, it is not found in Canada at all, but only from Virginia southward, chiefly along the region of the Alleghany Mountains. The two species have a good deal of general resemblance, but sufficient differences in their botanical characters are found to maintain their specific distinctiveness. The American species is hardly such a stout-growing shrub as the foreign one. It has usually smaller, less bristly pointed leaves, with bristles or teeth farther apart, racemes of blossoms shorter and fewer-flowered, petals notched at the apex instead of entire, as in the other, and with smaller berries, which are roundish or oval in shape, while those of the European species are larger and oblong.

For all cultural purposes the commonly introduced species is probably the equal, in every way, of the rarer native one. It is perfectly hardy in all well-drained situations, enduring winters when the temperature sometimes falls to thirty degrees below zero, as at Montreal. It may be used in almost any manner in plantations, and will thrive better than most shrubs in rocky situations where it is almost impossible to make any attempt at cultivation or planting. While it is always much more handsome and picturesque when allowed to grow naturally and produce its long pendent branches laden with flowers or fruit, it will bear pruning into any desired shape, and in most situations may be trimmed into a very good and close hedge. Close pruning and trimming involves the loss, however, of a large proportion of the bloom and fruit, the chief attractions of the plant. Where it is desired to prune into formal shape and to insure also a good supply of blossoms in the following summer, the pruning should be done just as soon as the plants have flowered in early summer.

The flower-buds are formed during the preceding summer, or winter pruning would, of course, cause these to be lost.

The common Barberry seems to be very widely distributed in the Old World, and a number of named kinds, found in both Europe and Asia, are probably only varieties. There are also cultivated in Europe a number of selected forms which have fruit of a yellow, white, violet, purple or black color. There is a form known as the seedless Barberry, while still another has berries which are considered sweeter and less acid than those of the type. But it should be stated that the trials of these at the Arnold Arboretum have not shown them to possess any remarkable individuality to make them worth special consideration. The fruit of the so-called sweet-fruited form is certainly not sweet; one rarely finds a berry without a seed in the seedless form, and the fruit of the white or yellow berried

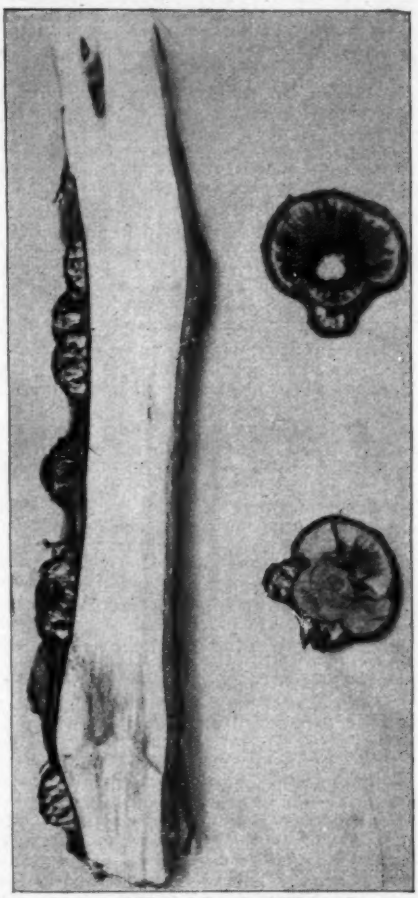

Fig. 23.—Sections of Blighted Branch of Filbert.—See page 134.

forms is poor and undergrown, and even the plants appear to lack vigor. A variegated-leaved variety is both ugly and useless; there is a purple-leaved variety which grows well and may be sparingly planted with good effect. It may be grown from seed.

Within a comparatively few years there have been introduced into our gardens two or three Chinese and Japanese species of Barberry, which are thoroughly hardy and very distinct from those in common cultivation. They have been frequently referred to in these pages, but it may be as well to again call attention to them. Berberis Sieboldii is a Japanese species, with stout gray stems and erect rather than the pendulous habit of the common Barberry. Its leaves are larger, of a lighter green color and have the margins thickly beset with slender bristles. The flowers are larger, of a paler greenish yellow color; they are followed by juicy fruit, which at maturity is somewhat larger than the fruit of the average common Barberry, though not so long. In autumn the foliage changes to bright, warm orange and scarlet colors. By its strong stems and erect, close, compact habit, this Barberry is likely to prove useful planted thickly as a hedge.

Berberis Amurensis, or Berberis vulgaris Amurensis, as it has been called by some botanists who consider it but a variety of the common species, has an erect habit of growth much like that of B. Sieboldii, but less rigid. The foliage is not so attractive in summer, nor so brilliantly colored in autumn, and it falls earlier. The plant, however, appears to be an extremely hardy one, and, according to Professor Budd, it withstands the cold of winter and the heat and drought of the prairie region at Ames, Iowa, better than almost any other species.

The most unique among hardy Barberries is the deservedly praised Thunberg's Barberry (Berberis Thunbergii), now advertised in many catalogues. It is of rather low stature, usually not growing more than three or four feet in height, and the branches have a tendency to grow horizontally or to become deflexed or pendulous, so that the whole bush finally assumes a broad dome shape. It differs very strikingly from its congeners in northern gardens. The small dark green leaves are without teeth or bristles on the margins, and are so thickly produced that they very effectually cover the branches and give the whole plant a handsome verdurous appearance. In autumn the green is displaced by rich colors, lasting for some weeks before the leaves fall. The flowers are of a lighter yellow color than those of most Barberries. It is most prized for the fruit. The berries are somewhat smaller than those of the common Barberry, and, instead of being produced in many-fruited racemes, grow in short clusters of two or three along the under side of the branches. They are of a shining bright scarlet color. This alone would not give them value over other Barberries, but they have the quality of keeping their color and of remaining full and fresh-looking throughout the winter, and even until the plants blossom again the next season. These berries are particularly dry and juiceless, there being comparatively little pulp, so that the outer skin remains entire, and does not become shriveled and wrinkled. Their juicelessness renders them unfit for any culinary use, but causes them to be of more lasting beauty than any of the ordinary kinds.

The branches are very spiny and numerous; they interlace closely and form an effective barrier to any small animal. B. Thunbergii will prove an excellent undershrub or border to the shrubbery or to drives. It may be planted in masses for the effect of its bright fruit in winter, or be used as a low hedge-plant. For a hedge its peculiar compact habit of growth will necessitate little or no pruning, and it will yet have a certain formality of outline agreeable to the taste of many persons. It is one of the most interesting and satisfactory of all hardy shrubs not grown for their flowers which have been introduced into cultivation for many years.

As some difference in fruitfulness has been noticed among a large number of seedling plants, it might be well, where fruitage is especially desired, to select some of the very best forms and to perpetuate them by layering or by cuttings. Cuttings of the ripened wood of this and other species of Barberry may be made in the autumn, or layers may be put down at the same time. Grafting is sometimes practiced, but it is very objectionable in this class of plants, and should be avoided. For all ordinary purposes, growing the common kinds from seed is preferable. As a rule, the seed will germinate much more quickly if the fruit is allowed to freeze hard a number of times before it is gathered. It should be washed from the pulp, and may be sown directly in prepared soil in the open ground, or in shallow boxes in the propagating-house. Unless subjected to the action of frost, or if allowed to become dry, the seed is likely to be slow and unequal in germinating and to tax the patience of the grower.

Arnold Arboretum. *J. G. Jack.*

Sowing Seeds of Annual Plants.

SEEDS of annuals suitable for cutting and general planting may be sown from now until the middle of April. A hotbed is necessary for tender kinds, and, while hardy annuals germinate freely enough in an ordinary cold frame, time is gained by early sowing in a little heat. In preparing for a hotbed, good fresh stable manure should be gathered into a pile and moistened, if dry, when it will soon generate a strong heat. If violent it should be turned over a few times until the rank odor, caused by an excess of ammonia, is dissipated. It should be still further moistened, if disposed to burn. The frame should be dug out to the depth of four feet and filled to the depth of two feet with hot manure and covered with six inches of loam. When the temperature of the soil falls to about seventy degrees seeds should be sown. A good plan is to mark out drills four inches apart, with a straight stick, to keep the varieties separate. Only a light covering of soil

should be used, the smoothing down of the ridges formed by making the drills generally being sufficient. It need hardly be added that careful attention must be given to watering with a fine sprayer, never in large quantities, but sufficient to keep the surface moist. The frame should be kept somewhat close and shaded on bright, warm days. It should never be entirely closed, sufficient vent being required to allow the escape of steam generated by the manure. After the seedlings appear, and as the season advances, more air will be required. These details, relating to management of the frame, after the seeds are sown, are of the utmost importance.

The earliest spring flowers with us are Pansies and Violas. They may be classed as perennials, and in the cool, equable climate of Great Britain behave very much as such. Here, however, they are best treated as annuals, or, at most, biennials. Seeds sown in spring germinate very rapidly, and the plants will keep in good flowering condition for nearly two months, until July, when the flowers gradually grow smaller. The Violas and the hybrids, called Tufted Pansies, continue blooming throughout the summer and last until the heavy October frosts. The difference between Pansies and Violas is not very clear in the popular mind, and the botanical distinction is somewhat obscure. The Pansy originated from Viola tricolor, and is nearly always parti-colored, and when, as in the case of Emperor William, the flowers become nearly self-colored, it will be generally noticed that there are infused some of the characters of the Viola, which are mostly self-colored. It should further be noted that the Violas increase very much from stolons below the ground, which are rare, indeed, in the Pansy.

Coreopsis Drummondii, yellow, with a crimson centre, is one of the most profuse and continuous bloomers, and one of the most elegant and effective annuals for borders and cut flowers. It is also a very useful winter bloomer in the greenhouse, for which purpose seeds may be sown in August. Few plants give so much satisfaction as the common Celosia pyramidalis. The flowers are borne in long plumes of crimson, yellow or silvery white, and sprays of it are very effective mixed with other flowers in vases. Where a good even strain can be secured these plants may be appropriately used for lines in borders or mixed in subtropical bedding. Single Dahlias are preferable to double varieties for cutting. Seedlings flower quite freely during the late summer months. Indian Pinks make very neat bedding-plants. Some of the subvarieties of Dianthus Sinensis Heddewigii are gorgeous, notably the doubl form known as Diadematus, and Crimson Bell and Eastern Queen, which are single. Some of the new varieties from D. plumarius are excellent for cutting. Gaillardias are unrivaled for the beauty and durability of their large handsome flowers. G. grandiflora, although a perennial, will bloom the first year if sown early. G. Drummondii is an annual and very beautiful.

Wellesley, Mass. *T. D. H.*

The Hardy Plant Garden.

THE winter-garden this season has offered opportunities for the study of snow-crystals rather than plants and flowers. A covering of snow lasting almost continuously from early December to nearly the middle of March is a rare experience in this latitude, and only possible under conditions of abnormally low temperature, such as have made the winter a notable one. We are so near the sea that our atmosphere is usually humid, and snow quickly disappears. However, the garden has not been a dreary blank. In a warm spot Snowdrops (Galanthus Corcyrensis) put in a belated appearance on January 2d, and an occasional bit of soft weather allowed some progress, so that when the snow disappeared on the 10th instant, it required few hours of sunshine to gladden the border with a whiter row of Snowdrops, the cheerful Anemones, dainty Irises, gay Crocuses and sombre Squills.

However fond one may be of the greenhouse it is pleasant at this season to escape its enervating heat and in the free air of the garden note the ever-wonderful quickening of life. Plant-life has in every season some interesting phases, but none so absorbing and charming as in the early garden, when one is not only entranced with the mystery of it all, but with the dainty beauty of flower and exquisite tints of the newly expanding foliage. There is a certain pleasure in the uncertainty. Old favorites will sometimes disappear, new ones are to be watched, and all so much at the mercy of the elements, so that the time of flowering from year to year is very much a movable feast. Even with considerable plantings, the early garden is not an effective one, but one to be enjoyed especially by those interested in plants for their individual beauty. There is a something—perhaps indefinable—something, at least, that one would scarcely care to analyze in the appeal which the flowers of the early year make to the lover of nature.

While the conditions of the winter have set back the very earliest flowering plants, they have not apparently been deterrent to those which follow hard after these. At present Iris reticulata is nearly ready to flower quite at the normal time, while I. Bakeriana and I. histrioides have just expanded their petals three or four weeks later than the average. Elwes' Snowdrops may be depended on to flower usually during the first January thaw. At present they are at the height of their beauty. For size, earliness and availability these may be considered the best Snowdrops for the garden, though complaints are made that they do not do well in all gardens and they do not appear to increase very rapidly. They have been collected largely, however, and the price for stock is moderate. Snowdrops when closed are specially pleasing, and in this condition I do not fancy the globose form of G. Elwesi as well as those with narrower buds, G. Imperati Atkinsi having an especially long bud of this character. Still such points are minor matters of individual taste.

As is well known, Snowdrops are exciting much interest among hardy-plant gardeners, and many varieties are now known in gardens, though comparatively few of them are available. Garden and Forest lately contained an interesting article describing the better-known kinds, though the best description cannot convey a very lucid idea of differences seen as the varieties grow side by side. G. Forsteri has improved this year, but, I think, does not compare in beauty with Mr. James Allen or Charmer. G. Melvillei major is also a fine form of great purity and vigor. G. Caucasicus is a favorite both for purity and beauty of form. However, one can scarcely go amiss with these plants, though to secure some of the varieties one has to depend on his garden friends. The Snowdrop is now inseparably connected with the name of Mr. James Allen, of Shepton Mallet, who sees wonders in them, and by his studies and courtesy has been the principal agent in exciting special interest in their cultivation.

Apparently this has been a fortunate season for hardy flowers, as they have not been exposed to many changes and the snow has covered them with a dry mantle during the excessive cold. Low temperature, however, does not cause the loss of so many plants as the winter rains and constant freezings and thaws. Unless I wish to experiment I class my plants as hardy and not hardy. The latter, if worth saving, are lifted and stored in some suitable place; the others get no protection, except in exceptional cases, and this mostly incidental to a needed mulch of manure. For plants with soft evergreen foliage a covering is a detriment as well as a hiding-place for slugs. It seems useless to cover hardy bulbs, unless the ground needs enrichment for the following season. The flowers are already formed and the manure has a trifling effect on their growth, while hardy bulbs generally are the hardiest of subjects. Sometimes, when they are planted late, it is beneficial to cover warmly to keep out frost and allow them to make progress during the winter, but the covering should not be one in which mice care to live. One cannot, however, always depend on late-planted bulbs making progress during the winter, even though well covered, as I found this season. I had a lot of late-planted Narcissi in pots and flats cached under mats and boards and these covered with snow, and they have made practically no progress. This was the surprise of the season to me, quite contrary to any previous experience. A gardener is apt to have many such warnings, and, conning his lesson, he learns to speak with modesty and caution. The slight shading even of a picket-fence will prevent much thawing during the winter, and in many cases an equally effective protection can be secured by a slat-screen tilted to the north over plants which it is required to keep dormant.

Elizabeth, N. J. *J. N. G.*

Correspondence.

Forestry in the West.

To the Editor of Garden and Forest:

Sir,—My attention has been called to a paper on forestry published in Kansas some time ago. The writer of the article claims that their lands are becoming more fertile owing to increased rainfall. He calls attention to the old school-books, in which the land west of the Missouri River was called the Great American Desert, and says that the railways—or, to use his own words, "the iron bands crossing the continent attract electricity and increase the rainfall." I can find nothing to prove that the rainfall has increased, but there is abundant

proof of greater benefit from the rain which falls, owing to the cultivation of the land.

When Kansas and Nebraska were comprised in Indian Territory the upland was covered with Buffalo Grass, which "shed the rain like a shingled roof"—a common expression in those days. Now there are millions of acres under the plow, and the water that ran off in the "draws" is mainly absorbed. If one inch of rainfall is equal to one hundred tons per acre, we can hardly compute the amount of water now saved that was formerly lost.

I well remember seeing the school-book the writer speaks of. It had a picture of an immense herd of buffaloes wading up to their humps in tall grass. It did not agree with my idea of a desert then, and I had no reason to change my mind after exploring it. The land immediately west of the Missouri River has undoubtedly been fertile for generations. I planted over three million forest-trees in one county in Kansas, and so have had some experience in that state. If the writer had examined the land further west thoroughly, the iron bands would not be equal to holding him to his present opinion. I have investigated this matter carefully for many years, and have convinced myself that west of the cultivated districts, both east and west of the mountains, the country is becoming perceptibly drier. We cannot prove this by the grasses, as they have changed wonderfully since I saw them first, over forty years ago, when the buffaloes were roaming in immense herds unmolested. A close examination in many places shows that the timber is not making as thrifty growth as in the past, or, rather, that the growth is becoming more stunted, for there is little that can be called thrifty.

I will take one of many cases to prove that this section of the country is becoming drier, and this since the iron bands were laid across the continent. The western Juniper, a tree similar to the Red Cedar, but not red-hearted, occupies the driest land on which trees are found to grow in Colorado, New Mexico and Arizona. I have made a special study of this tree in the latter territory. Here were belts, miles upon miles in length and several miles in width, where these Junipers, in hundreds of thousands, germinated their seeds and produced trees in abundance up to forty years ago. Since that time no new trees have been produced, although the old trees are maturing seeds in immense quantities. These I have examined closely and find their germinating qualities perfect. Fires may be said to have an influence in producing this result, but a careful examination shows no signs of fires during that time, and fires of a half century ago could be detected on the old trees in that climate. Facts like these should be convincing, and it is certain that the interior of the continent is gradually becoming drier.

During the month of August, 1871, Thomas Meehan, Dr. John A. Warder and I measured a petrified stump in the petrified forest near Fairplay, Colorado, over eleven feet in diameter. From pieces broken off it appeared more like a Sequoia than any other tree; no tree eleven inches in diameter could be grown there now. With water in abundance the same results could again probably be accomplished.

Larkspur, Cal. *Robert Douglas.*

Exhibitions.

Spring Show of the Pennsylvania Horticultural Society.

AT the spring flower show in Philadelphia, last week, the staging was almost entirely dispensed with, and Horticultural Hall became in effect a garden, with the plants grouped naturally on the floor. The only exceptions to this arrangement were some fine specimens of Palms, Ferns, Pandanus, etc., on pedestals, either as parts of the decoration of the hall, or as the centre of groups of exhibition plants, so as to give a mound-shaped form to the collection. The decorations were harmonious, not excessive, consisting chiefly of bamboo arches, rising from the floor to the gallery and wreathed with Wild Smilax.

As in former exhibitions, the collections of Miss Baldwin, Mr. Drexel and Mr. Childs were drawn upon for many of their finest plants. Nearly all the specimens on columns were contributed by Miss Baldwin, and her gardener, William Joyce, received much praise for such plants as Pritchardia Pacifica, the tall Cocos Weddelliana, which showed that this plant was quite as attractive when its elegant leaves spring from a stem a yard high as it is as more commonly seen, and many more. On the stage, John Westcott, who had charge of the decorations and arrangement of the whole, had massed many fine Palms and Dracænas, with well-flowered Azaleas, Acacias and Cytisus, and masses of Cinerarias and Lilies from Westcott's Laurel Hill Nurseries. In front of the stage, and extending its entire length, were nearly two hundred Cactuses, Agaves and similar plants of such rarity, value and interest as can be found nowhere else, perhaps, in the country, except in the collection of Mr. A. Blanc.

A noteworthy group was that arranged by Thomas Long, Mr. Drexel's gardener, with its superb specimens of Latania rubra, Pritchardia grandis, Geonoma Séemannii, Phenicophorium Sechellarum, Livistona aurea and many other plants of regal beauty. The collection which Mr. Huster brought from Girard College had for its centre-piece a superb Kentia, surrounded by many other Palms and plants distinguished for the grace and color of their foliage. Near the border of the group were four large pots of Bletia Tankervillæ, the flowers of which stood out in striking relief against the dark foliage. Each of these had a dozen flower-spikes some four or five feet high. Very rarely do we see such a group of Ferns as those from Mr. Drexel's collection, which were all of the first size and in perfect condition to the very tip of every frond. An immense Gleichenia Mendelii, which was probably five feet in diameter, and whose arching fronds quite concealed the pot in which it was grown, stood on a raised column for the centre-piece, and around it were equally well-grown specimens of G. dichotoma, G. flabellata, Adiantum Williamsi, A. decorum, A. cuneatum, the crested form of Microlepia hirta, Nephrolepis davallioides, Davallia affinis and several others. The last-named, D. affinis, is a Fern whose good qualities are hardly appreciated, since it not only can be grown into an admirable exhibition plant, but it is equally useful for ordinary decoration. It transports well and endures much neglect.

Roses and Carnations, together with Orchids from Edwin Lonsdale and William Joyce, were the particular attractions in the foyer. The Roses were admirable. Nothing more beautiful can be imagined than the blooms of Madame Caroline Testout, which were sent here by Ernst Asmus. We have described this Rose before, but too much cannot be said in favor of the clearness of its color and the other good qualities which make it the best of pink Roses. John Burton again showed a large cluster of his fine new American Belle, a sport from American Beauty. All the old Roses of merit were admirably grown, and one new to Philadelphia was shown by Mr. John N. May, of Summit, New Jersey. This is the hybrid Tea Rose, Mrs. Whitney, which won the silver cup at New York last autumn. It is a bright pink of excellent habit, with long well-formed buds, and it has the additional merit of being one of the most fragrant of Roses. John Gardiner showed some very fine flowers of the old Madame Clemence Joigneaux, a Rose which was sent out thirty years ago, but, like many others, has been put aside for new ones which are no better. It was sent out in 1861 by Liabaud, who was the originator of Madame Gabriel Luizet and many other good Roses.

Prizes for Roses were awarded to Charles E. Meehan, Joseph Heacock, Edwin Lonsdale, John N. May, Thomas Monahan, J. Kift & Son and Fred. Ehret.

The exhibition of Carnations was, as usual, large and good. Among the white varieties Lady Maud took the first prize over Lizzie McGowan. The plant has size and substance and perfect form, and is a clear white, with no suspicion of yellow. Portia still holds its own among its scarlet varieties, and has everything to commend it except size. Buttercup is still in the lead as a yellow flower, or, rather, as the best substitute for that color, since a pure yellow has not yet appeared. Edna Craig, by universal consent, is the best light pink, but for a very pale shade Daybreak is worthy of notice. It is a first-class variety and of a color which may almost be called a blush-white. The best crimson exhibited was the Pride of Kennett. A very interesting exhibit was one made by W. R. Shelmire, of Chester County, consisting entirely of seedlings from the variety Cæsar. It is claimed that all the seedlings from this variety come double, and of the twenty shown here some were of great merit. Ophelia is a large new Pink raised by Edward Swayne, of Kennett Square, which took the Craig Cup as the best seedling of the year. The flower is of good size and habit, but lacks fragrance. On the second day of the exhibition Mr. Frederic Dorner, of Lafayette, Indiana, showed some seedlings of the finest quality, to three of which were awarded the Wentworth silver medals for superior seedlings which have never been offered for sale. The great needs now, from a florist's standpoint, seem to be a clear yellow, a bright scarlet larger than Portia, and a crimson larger than Pride of Kennett.

Besides the persons previously mentioned, prizes for plants of special merit were awarded to Robert Craig, F. G. Cox, W. K. Harris, John Hughes and H. A. Dreer.

It seemed a misfortune that so good an exhibition should not

have been made better by the addition of more of what are popularly known as spring flowers. Even in such a cold season as this many flowers of great delicacy and beauty are blooming out-of-doors, and with the help of a cold frame collections of most of the early-blooming spring varieties could have been prepared. How interesting some of the commonest old-fashioned plants appear in such a place was evinced by the attention given to the collection of the tall, white, sweet-scented Stocks which were displayed by C. W. Cox, gardener to H. Clay Kimball.

Notes.

Three counties in Florida, Brevard, Marion and Orange, have nearly 2,000 acres of Lemon groves, containing more than 20,000 trees.

In a garden near New York, last week, we saw Iris Histrio, Iris histrioides and Iris Bakeriana, with their beautiful and fragrant flowers all fully expanded and looking cheerful, in spite of the fact that the mercury stood at twenty-four degrees, Fahrenheit.

A writer in the *American Florist*, in speaking of the preparation of hot-beds, gives the timely suggestion that a mixture of fresh spent hops from a brewery, and stable-manure in equal proportions, not only produces heat longer than manure alone, but the remains of the mixture, when thoroughly decomposed, make a most valuable ingredient for potting soil.

Our readers have been told of the Chrysanthemums frozen in cylinders of ice, which were sent last autumn from New Zealand to a London flower-show. Now, it is said, a return gift has been made; several blossoms of English prize-winners at this show have been similarly prepared and are now on their way to New Zealand, where, it is hoped, they will arrive in time for the autumnal flower-show at Wellington, which, in that antipodean clime, is held in April.

A great many persons have been disappointed at the behavior of Tuberous Begonias when they have been grown in the open air. In a recent paper, however, before the Massachusetts Horticultural Society, Mr. John G. Barker, Superintendent of Forest Hills Cemetery, spoke strongly in favor of these plants for bedding purposes. He stated that he had grown thousands of them in different parts of Forest Hills, in small beds and in large ones, and in all cases they proved the best flowering plants in the cemetery.

Meehans' Monthly calls attention to the fact that the American Holly is one of the easiest of trees to transplant if it is severely pruned at the time of moving, although it will rarely live without this treatment. South of this latitude this is one of the most beautiful and useful of broad-leaved evergreen trees even when it produces no fruit. The tree is said sometimes to bear flowers of both sexes, but Mr. Meehan states that he has never found a berry on one which stood a long way from others, and that, in fact, a large proportion of both the English and American Hollies are strictly dicœcious.

The last issue of the *Journal of the Royal Horticultural Society*, parts 2 and 3 of vol. xv., contains several papers of special interest. The Fuchsia, its history and cultivation, is treated upon by Mr. G. Fry, one of the most successful breeders and growers of garden Fuchsias. Begonias are exhaustively dealt with in four papers: The History of the Genus in Gardens, by Mr. Harry Veitch; the Fifty best Species of Begonia, by W. Watson; Tuberous Begonias by Mr. J. Laing, and winter-flowering Begonias by Mr. H. Cannell. The papers read at the Conference, on the Apricot in France, Plums for the Market and Dessert Plums, by Monsieur F. Jamin, Mr. J. Smith and Mr. T. F. Rivers, respectively, are valuable contributions to the literature of fruit-culture; the paper and report on Michaelmas Daisies, by Mr. D. Dewar, are also really good works.

Official statistics show that 25,326 car-loads of green and canned fruits were sent out of California last year. The increase in the shipment of canned fruit is specially gratifying, inasmuch as it helps to prevent a glut in the market in very abundant years, and next year promises to be an abundant one, especially in California orchards, where irrigation is necessary. The winter's snowfall is largely above the average, and that will insure an ample supply of water in all the streams that feed the irrigating canals. How much of promise there is in this assurance will be appreciated when it is remembered that in almost all the districts where oranges, lemons and raisins are produced regular irrigation is needed from April until November, and this is largely true also of the places where peaches, apricots and grapes are produced in the greatest abundance.

Mr. William Baylor Hartland, in an interview published in the *County Cork Advertiser*, states that among the neglected industries of Ireland is fruit-growing, which is, no doubt, true. One of his schemes is to plant several thousand acres of Gooseberries for the American market. He prophesies that by the time the bushes are in full bearing steamships will be making five-day trips to New York, so that the berries picked fresh in south Cork could be carried over in cool compartments to New York, where they could be readily sold to wealthy Americans who "do not well know what to do with their money." We should be very glad to get some first-class Irish gooseberries, and it must be confessed that hitherto those we have raised at home cannot, as a rule, compare with the British berries. We are learning, however, how to cure the mildew, and perhaps by the time the steamers are making five-day trips across the Atlantic we can grow berries good enough to export to such connoisseurs as Mr. Hartland.

The first monthly flower-show of the New York Florists' Club proved that the club must seek more spacious quarters or provide a smaller exhibition and one which will attract fewer visitors. The throngs who came were well repaid for the difficulty of pressing through the crowded rooms by the beauty of such plants as the Azaleas, shown by J. M. Keller and James Dean; the collection of Anthuriums, a new Datura, and a fine variety of Cypripedium Greyanum, by Pitcher & Manda; the superb Roses by Ernst Asmus, F. Moore, J. H. Taylor and W. H. Young; and the Carnations and Cyclamens of C. H. Allen and John McGowan. Among other plants of special interest was a variety of Genista racemosa, shown by I. Forstermann, which had very distinct foliage and flowers, larger than those of the type, borne in the greatest abundance; a pink form of Primula obconica, shown by William Tricker; a huge mass of the so-called Tulip Orchid, Cattleya citrina, which Mr. Manda had suspended from the arch between the two rooms; a fine White Heath, by James Dean; and some hybrid Cinerarias, by Louis Schmutz. Besides the exhibitors mentioned above, George Bennett, Peter McDonald, Siebrecht & Wadley, G. Bergman, H. A. Francis, C. Pesenecker & Son and Dailledouze Brothers received certificates for flowers; Thomas Griffin for mushrooms and tomatoes, and A. Hughes & Co. for vases, jardinières and pots.

Dr. George Vasey, the head of the botanical division of the United States Department of Agriculture, has died in Washington after an illness of only three days. Dr. Vasey was born in England on the 28th day of February, 1822, and was brought by his parents to this country when a year old. The family settled in New York, where the boy was educated in the common schools and then studied medicine, graduating from the School of Medicine in 1848. He practiced his profession in Illinois for twenty years, and from 1870 to 1872 was in charge of the Museum of the Illinois Natural History Society. In his early years he must have paid considerable attention to botany, for in 1874 he was appointed botanist in the Department of Agriculture, a position which he held continuously until his death. For many years Dr. Vasey has devoted especial study to the Grasses, and a number of important papers on this family of plants from his pen have been published by the government of the United States. Among these may be mentioned the *Grasses of the South*, a report on certain Grasses and Forage Plants for cultivation in the south and south-west; *Grasses of the Arid Region*, being a report of an investigation of the Grasses of the arid district of Texas, New Mexico, Arizona, Nevada and Utah; *The Agricultural Grasses and Forage Plants in the United States; Illustrations of North American Grasses*, probably the most important of all Dr. Vasey's publications. The first volume, entitled *Grasses of the Southwest*, was published 1890–91; the first part of the second volume, *Grasses of the Pacific Slope*, last year; the second part of this volume is now in press. *A Monograph of the Grasses of the United States and British America*, part i., was published in 1892. In 1876 Dr. Vasey published a useful *Catalogue of the Forest Trees of the United States*, explanatory of the collections of North American wood-specimens exhibited by the government at the Centennial Exhibition in Philadelphia. Under his active administration Dr. Vasey has seen the national herbarium enlarged from a modest beginning to its present size, and through his activity and energy become one of the greatest collections of North American plants. His death will be felt by a multitude of correspondents to whom he was uniformly kind, obliging and helpful.